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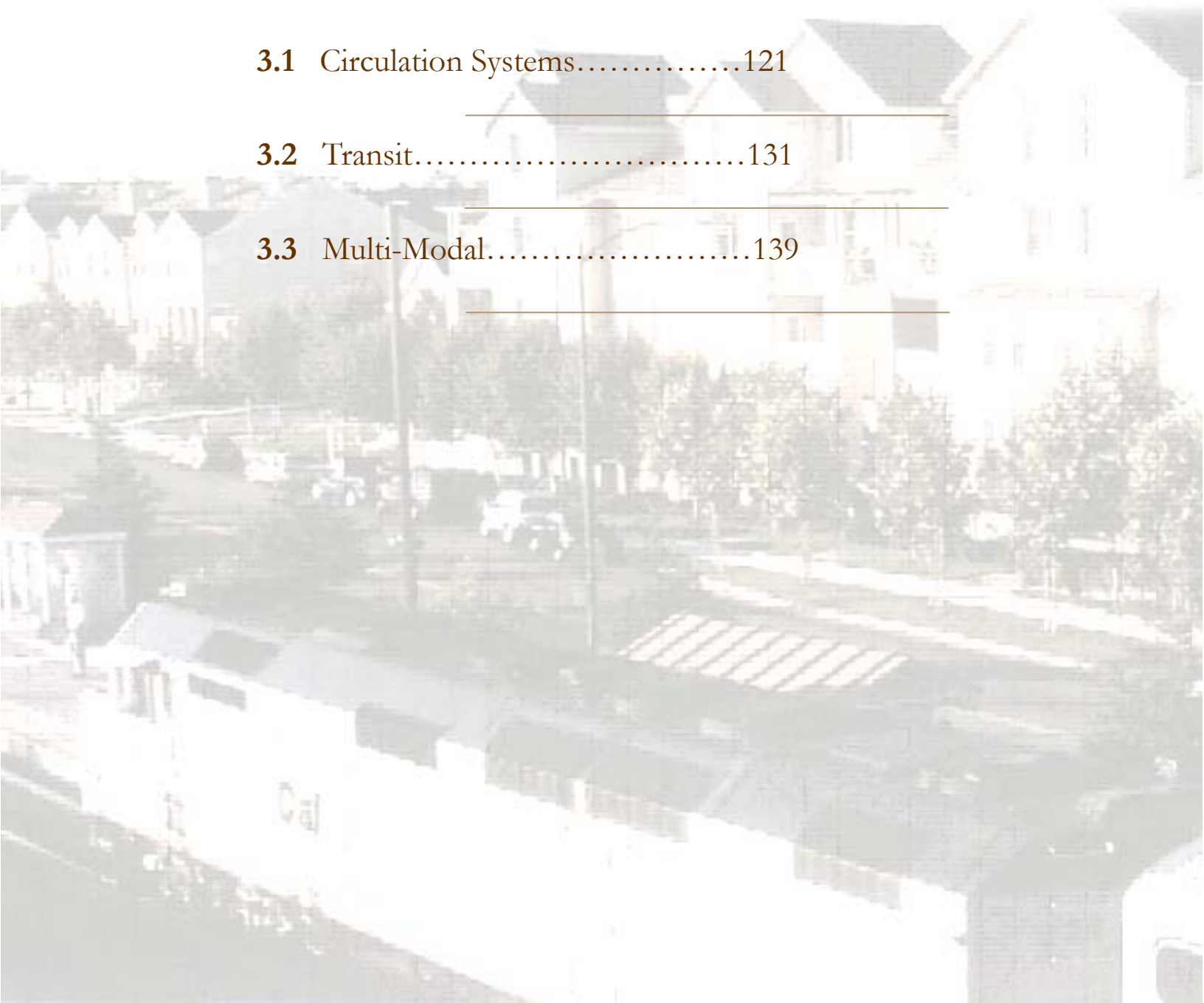
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### 3.0 Transportation

*The circulation systems should be the backbone of the city, supporting its economy and serving and influencing its land use patterns in a positive way. Surprise has grown to a major community using the automobile as the primary mode of transportation. The automobile will continue as the primary mode of transportation, but the city should work toward providing alternatives. The alternatives modes will provide greater accessibility for residents and visitors, mitigate congestion and pollution, and support planned land use patterns.*

#### Strategies for achieving this system include:



- Maintain an integrated land use and transportation planning process to ensure that development and infrastructure planning accurately reflect travel demands and complement each other.
- Provide for adequate transportation corridors by identifying and preserving adequate rights-of-way during the planning and development processes.
- Maximize the effective use of our arterial roadway capacity by adopting access management strategies which limit the quantity and location of driveways and assure a high level of cross access between adjacent developments.
- Encourage land use patterns that can reduce the amount of external travel through development of neighborhoods where mixed use centers and services are easily accessible from residences.
- Expand and enhance pedestrian, bicycle, and transit access by considering safe and inviting access to shopping,

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offices, schools, etc. from multi use paths and transit facilities in all development decisions.

- Ensure that the physical location and design of our transportation corridors is done in a fashion which is environmentally sensitive to our desert, mountains, scenic corridors, open spaces, and neighborhoods.
- The Surprise Transportation Network should support the village planning concept of the *Surprise General Plan 2030* by integrating transportation into the planning process at the neighborhood, village, city, and regional levels of effort.
- Continually coordinate and cooperate with regional planning agencies and adjacent communities to assure effective regional continuity of roadway, transit, and alternative modes networks.
- Work with all appropriate agencies to support the future implementation of commuter rail service in the Burlington Northern Santa Fe (BNSF) Railway corridor adjacent to US 60/Grand Avenue.



## 3.1 Circulation Systems Element

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## 3.1 Circulation Systems Element

### 3.1.1 Introduction



The purpose of the Circulation Systems Element is to plan a sufficient multi-modal transportation network for the future. This system should include all levels of roadway from freeways to local streets and should also consider a full range of transit options, including local and regional bus service and passenger rail service.

The connection between land use and circulation is a fundamental concept in transportation. Transportation and land use are inexorably connected. Everything that happens regarding land use has transportation implications and every transportation action affects land use.

### Issues

#### **Provide Adequate Transportation Network Capacity:**

The transportation network in the city of Surprise Planning Area should provide for adequate spacing of major roadways in both the east-west and north-south directions.

**Develop a Transportation Network Compatible with Planned Land Uses:** The future transportation network must provide sufficient roadway capacity to serve the future land uses at a build-out condition.

**Neighborhood Preservation:** In order to preserve Surprise's neighborhoods, a transportation network must be designed to discourage traffic from using local and collector streets as cut-through routes to avoid congestion on arterial streets. Additionally, buffer areas must be provided through the planning process.

**Develop a Safe Pedestrian Environment:** In order to encourage the use of multi-modal transportation systems it is imperative that pedestrian connections are identified to provide access to and from transit corridors and within our neighborhoods.



**Infrastructure Development Cost:** Policies should be developed to ensure that the cost of transportation infrastructure is adequately borne by the development community. The city's *Capital Improvement Plan* should be prioritized to accommodate the development of proposed growth areas and associated land uses.

**Provide Adequate Lighting Along Transportation Corridors:** To provide maximum safety for both pedestrians and vehicles, street lighting standards should be developed as part of the city's development codes which address both safety and neighborhood aesthetics.

**Provide Adequate and Cost-Effective Landscaping on all Corridors:** The city's development codes should include requirements for drought resistant landscaping along all roadway corridors which reflect the character of the specific planning area within with the corridor lies.

**Long-Range Multi-Modal Transportation Plan:** This element is based upon the content of the *Surprise Transportation Plan*, a long range multi-modal transportation plan developed by the Surprise Transportation Commission and adopted by the City Council.



### 3.1.1 Discussion

#### A. Transportation Modal Elements

- **Roadways**

##### Recommended Functional Classification System

Map 3.1A presents the functional classification system for Surprise Planning Area roadways under "buildout" conditions. Functional classification is a system of dividing roadways into specific categories based upon access and mobility functions. The following categories are included in the Functional Classification System for the *Surprise Transportation Plan*:





- **Freeways:** Freeways are divided highways with four or more travel lanes that are designed to carry large volumes of high-speed traffic and serve long, regional trips.

Freeways have full access control, with entry and exit restricted to grade-separated traffic interchanges. All roadways classified as freeways are portions of the State Highway System and are under the jurisdiction of the Arizona Department of Transportation (ADOT).



- **Parkways:** Parkways are high capacity surface streets with substantial access control and potential grade separations that are designed to accommodate regional travel over significant distances. A minimum of six through lanes is the typical width. In Surprise, parkways feature the use of *median u-turn intersection treatment* geometrics which redirect left turn movements to u-turn locations away from the intersections. The resulting roadway with dual-cycle signals on a short cycle length provides exceptional traffic progression, higher effective roadway capacity and a significant reduction of intersection collisions.
- **Major Arterials:** Major arterials are designed to move high volumes of traffic over substantial distances, but may also provide direct access to adjacent properties. In the Valley, arterial streets are usually located on one-mile section lines and intersections are at-grade. Six through lanes is the normal width.
- **Minor Arterials:** Minor arterials are similar to major arterials but with somewhat lower design requirements. Four through lanes is the normal width.
- **Collectors:** Collector streets are designed to carry lower traffic volumes for shorter distances than arterials. Collector streets receive traffic from neighborhoods and

distribute it to arterials and vice versa. They serve more of a land access function as opposed to providing mobility for long-distance traffic. Two to four through lanes is the typical width.

- **Local Streets:** Local streets provide access directly to local property and are not designed to accommodate through traffic. Two lanes is the usual width. Local streets are not shown on Map 3.1A.



Since collector and local roadways are usually developed as part of planned area developments to support specific land uses and site plan configurations, these roadways are not shown on Map 3.1A. The above classification descriptions show some latitude in describing roadway cross-sections. As urbanized areas continue to grow and spread, increases in traffic volume occur on roadways in built-out areas. It is often difficult to acquire the rights-of-way necessary to widen these roadways to the full capacity warranted by current and future conditions without causing serious impacts on adjacent land uses. The specific standards within the *Surprise Transportation Plan* allow some flexibility in seeking creative solutions to local and regional traffic demands.

### Scenic Corridors

Sun Valley Parkway has been functionally designated as a "Parkway." The roadway also experiences significant recreational bicycle use. The town of Buckeye, Maricopa County and the city of Surprise all recognize that this roadway showcases the White Tank Mountain Regional Park which the roadway circumnavigates. The view angles away from the mountains are also dramatic. These views should be preserved and development which abuts this roadway should be undertaken with an awareness of the special character of this roadway corridor.





To this end, the Sun Valley Parkway has been designated as a "Scenic Corridor." Specific urban design character guidelines should be developed for this corridor to preserve the native vegetation and unique visual characteristics of the corridor.

Other Scenic Corridors may be developed as a part of the village planning process.

## B. Roadway Level of Service

The level of service (LOS) concept is utilized to determine the efficiency of existing and future roadway and intersection operations. Level of service provides a comparative measure of the efficiency of traffic operations and is reported in levels "A through F," with "A" representing the best and "F" representing the worst level of congestion or driver discomfort. LOS on roadway segments is defined as follows:



LOS A: Free flowing conditions. The operation of vehicles is virtually unaffected by the presence of other vehicles and operations are constrained only by the geometric features of the highway and driver preferences.

LOS B: Indicative of free flow, but the presence of other vehicles begins to have a noticeable impact on speeds and freedom to maneuver.



LOS C: Represents a range in which the influence of traffic density on operations becomes marked. The ability to maneuver within the traffic stream and to select an operating speed, is now clearly affected by the presence of other vehicles.

LOS D: Borders on unstable flow. Speeds and ability to maneuver are severely restricted because of traffic congestion.

LOS E: Operations at or near capacity and are quite unstable.

LOS F: Represents forced or breakdown flow.

The city of Surprise strives to achieve a level of service "D" or better on all roadways. Any roadway where the level of service falls to a level of service "E" or "F" is considered congested and requires review for improvements. Where feasible, capacity improvements or other remedial actions are usually recommended if the level of service is worse than "D."

### C. Goods Movement/Freight

Virtually all of Surprise's goods are imported from outside the region. The movement of freight and goods in Surprise and the region is supported by an integrated intermodal freight infrastructure consisting of the use of trucks/roadways, rail and railroads. Commercial goods movement must be optimized to maintain and improve the region's economic competitiveness while minimizing potential negative impacts to the transportation system and neighborhoods. The overall intermodal freight system and infrastructure is owned and operated by public agencies and private businesses. While the system is intended to support the goods movement/freight requirements for the city of Surprise and the region, it is important to also note that this infrastructure also supports Surprise's role in the nation's supply chain and business trade.



**Trucks:** The majority of goods in the Surprise region are transported by trucks using state and federal highways with access provided by truck routes along regional arterials. In the Surprise region, US 60 and SR 74 are two major corridors. These serve both local as well as regional trade.



**Freight Rail Service:** Freight rail service is operated by the Burlington Northern Santa Fe (BNSF) railroad along the US 60 corridor from north to the south. Freight service within this corridor is focused in the areas of auto trans-load service, lumber, fly, ash, cement and local freight service.

## D. Parking

As travel and parking needs have increased, there has been recognition of the constant need to better manage transportation and parking facilities. Parking requirements in Surprise are set out in the *Zoning Ordinance and Engineering Design Guidelines* by the type and size of use.

### Trends

Rising demand for parking for long distance commuters:

The current park and ride facility, located at Bullard and Bell Roads provide an inter-modal or change of mode service. The predominant modal interchange is typically between the private automobile and the transit mode, but also includes modal changes between transit and bicycle, pedestrian, carpool, vanpool, or drop-and-ride modes as well. Transit mode offered at the facility is the express bus transit. There is a rising demand for additional park and ride facilities in Surprise. The changing needs of the public and the surrounding environment reaffirm the need to approach park and ride facilities with an eye for innovation and optimization.



### Issues

#### Managing Parking Supply

A balance should be achieved between parking policies, travel behaviors, development density, development cost and urban design. In most developments in Surprise there is an oversupply of parking and it is provided at no direct cost to the tenants or their employees. Measures need to be taken to discourage oversupply of parking on the one hand and still provide adequate parking that is not too expensive in order to maintain focus areas as a retail and employment center. On street parking in residential areas near employment and commercial sites should also strike a balance between providing resident parking and providing overflow commercial and employee parking.



### **Parking Supply and Long Distance Commuters**

There is a need to construct and maintain inter-modal transfer facilities or parking facilities to provide a staging location for travelers to transfer to other transit modes. A park and ride lot if carefully planned and integrated into a comprehensive transportation system, can encourage a shift from single occupancy vehicles to higher occupancy modes meeting the efficiency needs of future travel patterns. This includes balancing desired land use densities with resulting parking demands and considering the impacts this parking will have on the immediate environment.

### **Parking Facility Design**

Structured parking allows development densities and site designs that support good transit service and alternative modes, although it is more expensive than surface parking to build. Structured parking will minimize the amount of valuable land needed for travel and parking purposes.



### 3.1.3 Goals and Policies

#### Goal 1

**Transportation decisions, strategies and investments are coordinated with land use goals and support the village strategy.**



#### Policies

1. Design transportation infrastructure in villages to support land use goals for compact, accessible and walkable neighborhoods.
2. Provide sufficient transportation facilities and services to promote and accommodate the growth anticipated in regional and village centers.
3. Develop a comprehensive, coordinated and continuous system of multi-modal facilities throughout the city.
4. Ensure that neighborhoods or the environment are not adversely affected by transportation.
5. Minimize congestion and support access to employment opportunities within Surprise and throughout the region.
6. Promote efficient freight and goods movement.
7. Prioritize transportation improvements to encourage and support development and redevelopment activities.

#### Goal 2


**Surprise has a well balanced transportation system.**



#### Policies

1. Ensure the local transportation system to be fully and effectively connected to the regional transportation system.
2. Continue to support construction of regional freeways providing improved access to Surprise and the region.
3. Continue to require new development to fully address transportation needs.

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4. All elements of the transportation system must be built, maintained and operated in a safe and effective manner.
  5. Allocate street space among various uses to enhance the key functions of a street.
  6. Increase capacity on roadways to improve safety and connection of the transportation network as well as to improve level of service standards.
  7. Continue to provide and expand transportation demand management strategies to help reduce traffic congestion and encourage alternative modes of travel.
  8. Continue to enhance traffic calming programs for neighborhoods.
  9. Ensure that a full range of programs should be funded and implemented including traffic enforcement, public information and school education programs.
  10. Require the transportation systems to be designed in accordance with all applicable safety standards.
  11. Pursue new technologies such as Intelligent Transportation Systems (ITS) to maximize the effectiveness of the system.

### **Goal 3**

**The Surprise transportation system is fairly and adequately funded.**



### **Policies**

1. Pursue dedicated funding sources for transit, new roads and maintenance of roads.
2. Pursue external funding sources such as federal, state, regional and county funding to the maximum extent feasible.
3. Continue to work with other communities to enhance state and regional sources of funding.

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## 3.2 Transit Element

### 3.2.1 Introduction



A primary strategy of the Surprise General Plan 2030 is to reduce dependence on the automobile in order to achieve multiple and interrelated goals including: increasing mobility, preserving and enhancing neighborhood character, improving air quality, and fostering compact development and a more walkable city. A greater reliance on public transportation will improve mobility by increasing the people-carrying capacity of the city's transportation system. It will also decrease the environmental degradation caused by the growing use of single-occupant vehicles. The intent is to develop a transit system that supports as well as leads the development of Surprise's village strategy as set forth by the Surprise General Plan 2030.



Surprise's village strategy combines transit supportive changes in the city's development pattern with a more complete and competitive intermodal public transportation system. Achieving growth targets based on cores and corridors is an important element of the village strategy. It provides more desirable investment in facilities and service delivery systems to support areas where growth will occur and reflects local decisions and neighborhood priorities. This paradigm shift will require some major investments in transit infrastructure and services as well as changes in priorities for street use.

### 3.2.2 Discussion

#### A. Regional Collaboration

The transit system is also largely affected by plans and programs that guide the development and management of the regional transportation system. The *Regional Transportation Plan* (RTP) adopted by the Maricopa Association of Governments (MAG) in September 2004 calls for a significant expansion of regional transit services into portions of Maricopa

County which are currently underserved, including Surprise. Proposition 400, the funding measures to implement the RTP, was passed by voters in November 2004, extending the one-half cent sales tax for transportation an additional 20 years, until 2025. This funding will be divided between freeway, arterial roadway, and transit projects. Commuter express service from Surprise to downtown Phoenix via the Grand Avenue corridor began in January 2006, and similar express service along Bell Road and the SR 101L freeway to Arrowhead Towne Center, Desert Ridge, and Scottsdale began in the summer of 2007. Much of the balance of regional transit service to be extended to Surprise through Proposition 400 (both frequent stop trunk line and limited stop express services) will not occur until later stages of the 20 year plan. Regionally funded transit services included in the RTP for Surprise are shown in Figure 4-2. The levels of transit service provided in the RTP are not adequate to accommodate projected demand given the rate of development in Surprise. In an attempt to bridge the gap for the short term, the Surprise Transportation Commission has recommended that "connector" services should be extended to other West Valley activity centers with higher levels of regional transit connectivity. Destinations include Arrowhead Towne Center, Luke Air Force Base, and Estrella Mountain Community College.



As transit services in these connector corridors are regionalized, the resources saved should be redirected to mobility needs internal to the city of Surprise. Service areas for internal "circulators" or "shuttle" services could include the Original Townsite, the Civic Center Complex, and the Prasada commercial complex. Such routes could offer "route deviations" for those with disabilities who cannot directly access the routes. Regional connector routes and internal shuttle service areas are shown in Figure 4-3.



By 2030 the Surprise Planning Area will have a population of almost 400,000. A much more robust transit network will be needed to support that population level. The RTP provides very limited funding for transit in Surprise until after 2025,

unless new regional funding sources are found. Because of this lack of regional funding, Surprise is focusing on making regional connections along a major transportation corridor.



During the public outreach effort for this Surprise General Plan 2030, citizens showed a preference for development patterns concentrated around major transportation corridors. Surprise has no major transportation corridor more significant than US 60/Grand Avenue. Not only is this roadway part of the State Highway System, it is also immediately adjacent to the BNSF Railway. MAG has recently completed the initial phase of a regional commuter rail study which shows support for passenger service in this corridor. Such service is not yet assured, and will, in any case, be years in the future. Until that time, concentrated rubber tired-transit services in the corridor can both demonstrate the demand for service and influence land use patterns in the corridor. A good example of this approach is the Main Street corridor in the city of Mesa. In that corridor, Bus Rapid Transit (BRT) is being implemented as a starter service. If it is successful, frequency and hours of operation may increase. At some future time, they will consider replacing the service with Light Rail technology, if ridership warrants. The *Ultimate Transit Plan* is shown on Figure 4-4. This network is based upon directing mobility demands toward the US 60/Grand Avenue corridor. The network is also congruent with the "Roadway Plan" and the "Land Use Element" of the Surprise General Plan 2030.

## B. Trends in Transit Use



According to the National Transit Database (NTD), transit ridership increased by 10 per cent from 1985 to 2005. During the same period, federal assistance applied to transit increased by nearly 105 percent. The trends also indicate a steady increase in the vehicle revenue miles nationwide. United States mass transit ridership began to surge with the increasing gas prices and has continued to rise steadily ever since. A number of cities with some form of mass transit have reported substantial increases in ridership as the cost of driving a car has increased by 25 to 30 per cent.

According to Census 2006, Surprise has a population of 103,402, total households of 37,319, and a median household income of \$60,198. The mean travel time to work was 34.1 minutes. According to MAG studies, Surprise is projected to have a population of approximately 401,458 people and 179,081 households by 2030. In addition to having additional jobs, the majority of this growth will be experienced in designated centers as shown by the Surprise growth map. These growth areas are expected to grow with high employment density as well as high overall residential density. According to the United States Census, more than 75 per cent of Surprise workers used a car, truck, or van to commute to their jobs. Public transportation as a mode of commute amounted to less than one percent. Surprise has seen a slight increase in transit ridership in the past year. Valley Metro reported about 1,655 boardings for Surprise in November 2007. This accounted for only about 0.12 per cent of Valley Metro's total ridership.



The projected increase in population for Surprise will provide transit with the opportunity to expand into new and growing markets, thereby extending its ridership base. To meet the continued needs and demands generated by development, it will become necessary for the transit system to expand and modify its existing routes. Continued effective and efficient management of the transit system will ensure that revenues received, along with federal and state assistance, will allow the transit system to fully utilize its resources. As environmental and capacity issues become paramount, transit's role will increase. Effective use of transit can make a significant difference in the level of congestion in certain corridors.

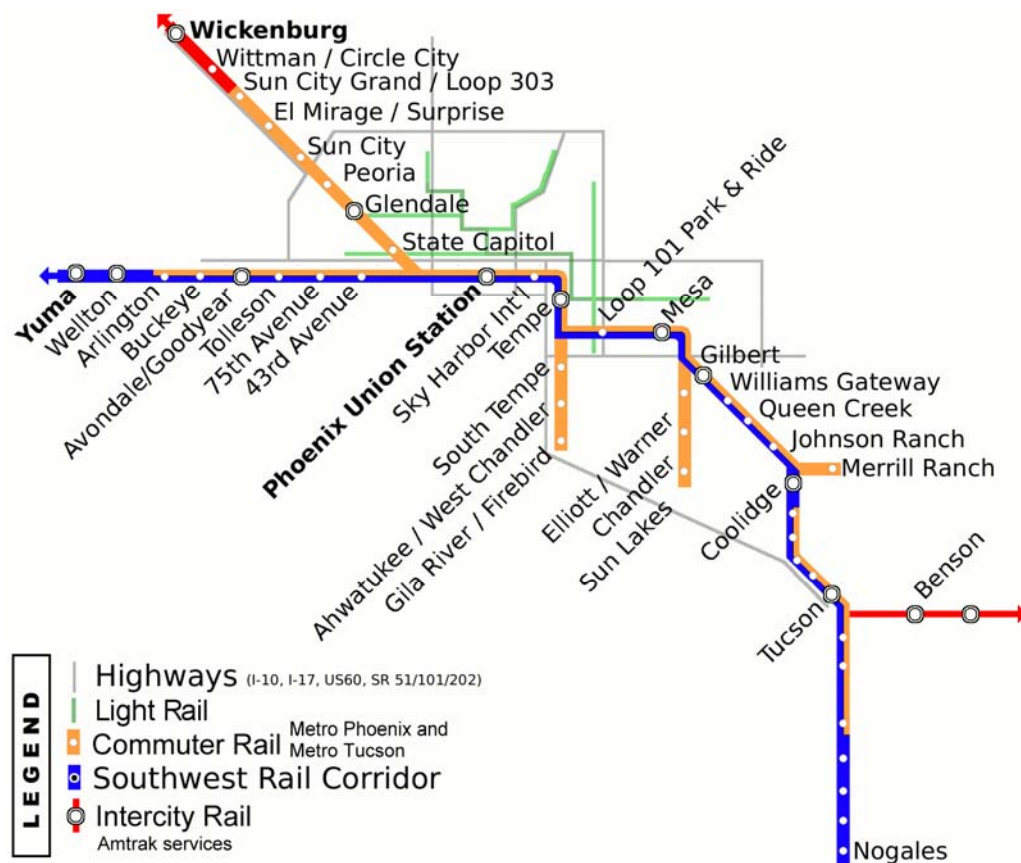
### C. Existing and Projected Levels of Transit

Valley Metro under the Regional Public Transportation Authority (RPTA) provides all of Surprise's transit service. Surprise is currently served by two Valley Metro express bus routes and one regional connector. Surprise also provides paratransit services to the general public. Most of the ridership is derived from individuals who do not have the functional ability to ride public transit buses. Express bus routes are meant to be suburb-to-suburb routes. Routes 571 and 572 serve commuters that travel between Surprise and Phoenix and Surprise and Scottsdale respectively. The regional connector bus service travels from Wickenburg to Arrowhead Transit center with a stop at the Surprise municipal complex. A park and ride facility at Bullard Avenue and Tierra Buena Lane serves the needs of the transit users. The popularity of these routes shows that there are important transportation needs in Surprise and the surrounding areas. Due to the success of these facilities, plans are progressing to have a circulator route within the city as well as regional high capacity transit such as commuter rail.



#### **Commuter Rail:**


There is a high demand for rail services to and from Surprise and the BNSF line is planned to be of utmost importance in achieving this objective. The BNSF rail line currently carries four to five trains daily at an approximate speed of 49 miles per hour. Upgrades and changes desired for implementing light rail on the BNSF line will include new signals, a second track, and reduced main track switching activity. Additional implementation requirements include: governance and administration, railroad cooperation, funding and finance.



**Figure 3.2A**

#### D. Transit Supportive City Land Use Planning

Implementation of the village strategy is dependent on the close coordination of land use and transportation planning. Village planning recognizes the relationship between transit and land use by focusing development in concentrated rather than linear patterns. Development and density must be focused adjacent to transit stops and stations. Transit investments are directed to link these transit supportive areas o provide people with an attractive option to the single occupant vehicle. This will allow more people to live and work



within walking distance of the transit. To achieve long term success in Surprise, transit must also have the following characteristics:

- Connect villages.
- Provide better frequency.
- Fast and reliable.
- Focused on performance.
- Easy connections.
- Sense of permanence.

### 3.2.3 Goals and Policies

#### Goal 1

**Surprise has an attractive and convenient transit system.**



#### Policies

1. Support the provision of high frequency transit service and capital investments to benefit high density/intensity areas.
2. Collaborate with regional agencies to ensure increased transit service accessibility, frequency, connectivity, and availability.
3. Integrate the regional transit system with the Surprise transit system.
4. Ensure transit planning as an integral component of long range planning documents and the development review process.
5. Implement transit priority measures to ensure increased transit ridership.
6. Pursue a citywide local transit system that connects homes with businesses and employment.
7. Encourage transit services that address the needs of persons with disabilities, the elderly, people with special needs, and people who depend on public transit for their mobility.

## 3.3 Alternative Modes Element

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## 3.3 Alternative Modes Element

### 3.3.1 Introduction

A complete transportation system is designed and operated to enable safe access for all users. While streets and motorized vehicles do account for the majority of a transportation system, they are not the only component. Broadly speaking, a transportation system can be defined as any means used to move people and/or products. Taken together these individual transportation options create the community's transportation system. For this reason it is critical that the transportation element addresses each of these choices, as applicable to the community. A complete transportation system also allows users to get needed physical activity into their daily lives. Pedestrians, bicyclists, motorists, and transit riders of all ages and abilities must be able to safely move along and across a complete street. An incomplete system fails to serve the pedestrians, cyclists, transit, individuals with disabilities, and both the youngest and oldest members of our communities. A complete transportation system also includes consideration for the environment by promoting "green" building concepts while beautifying streets and making them inviting places to be.

### 3.2.1 Discussion

#### A. Pedestrian



The most basic transportation option is walking. Walking is the most popular form of exercise in the United States and can be performed by people of all ages and income levels; however, it is not often considered as a means of travel. This is mainly because pedestrian facilities are generally an afterthought and not planned as an integral part of the transportation system.

The city's pedestrian network consists of sidewalks, trails, and street crossings. Surprise has many areas that seem especially conducive to walking for recreation and transportation, particularly within the planned village core areas, within its neighborhoods, and along the washes that traverse the city. The city has in the past established policies to encourage

improvement of the pedestrian network in those areas, through pedestrian connections between neighborhoods and other areas. Some parts of the city are well served by an extensive sidewalk network and pleasant walking conditions. Pedestrian connectivity along washes and canals is lacking and must be given significant attention. The *Alternative Modes Plan* includes multi-purpose paths, and a variety of trail corridors for pedestrian activity. Trails include local routes and also corridors included in the *Maricopa County Regional Trails Plan*. The *Alternative Modes Plan* is shown on Map 3.3A.

### **Pedestrian Improvement Priorities**

Barriers to pedestrian movement limit the viability of walking as a form of transportation in some parts of the city. Specific pedestrian issues raised during “pedestrian hot spot” discussion undertaken as part of the new Surprise General Plan 2030 preparation include the lack of pedestrian crossings at intersections, the lack of sidewalks along some streets, difficult crossings on certain intersections, and train crossings at a number of locations.

In addition, measures may be required in special areas to reduce vehicle speed and induce traffic calming. The Surprise General Plan 2030 seeks to promote walking within Surprise by improving pedestrian connections, increasing pedestrian safety and creating a land use context supportive of pedestrian travel.

### **Minimizing conflict between transportation modes**

Pedestrians face obstacles and conflicts with motorists when roadways and developments are designed primarily for the automobile. Even if pedestrian facilities are provided, high-speed, high volume roadways with large intersections create barriers for pedestrians. In designing roadways, the impact that the different modes have on each other must be balanced. A large number of public comments received during the general plan development process have indicated a strong need for better pedestrian connectivity throughout the city, especially the need to address major pedestrian barriers. In addition the need to create a more pedestrian friendly environment (with amenities, traffic calming, and safer





intersections) has been extensively noted, particularly within high activity centers and nearby neighborhoods.

### **Facility Improvements**

The city of Surprise requires sidewalks along all public streets as part of new developments. Retrofitting existing developed areas to add sidewalks and/or curb ramps is also being done, but is a more difficult and controversial task. This issue has been noted extensively in public comments on pedestrian transportation.

### **Design for pedestrian facilities for persons with special needs**

Limitations experienced by the elderly, children, and persons with a disability should be considered in the design of pedestrian and other transportation facilities. "Accessible" design is required by the Americans with Disabilities Act (ADA) and can benefit able-bodied users as well. Numerous public comments received during the general plan process have stressed the need for better pedestrian facilities, especially for the residents with disabilities who rely on them most.

### **Maintenance of pedestrian facilities**

Continued maintenance efforts are needed to assure that pedestrian areas, including bus stops are in a usable state of repair. This is especially important for the elderly and persons with a disability in order to maintain their mobility.

## **B. Bikeway System**



Like pedestrians, bicyclists are often overlooked when considering transportation facilities. Cycling, however, is a very efficient mode of travel. Bicycles take up little space on the road or when parked. They do not contribute to air or noise pollution and offer relatively higher speeds than walking. Bicycling should be encouraged to decrease the use of automobiles for short trips in order to reduce some of the negative aspects of urban growth. Linked trips using bicycles and transit are possible since all Valley Metro regional buses have bike racks on the front. Noise, air pollution, and traffic congestion could be mitigated if more short trips were taken

by bicycle or on foot. Riding a bike for short distances between residences and transit stops helps reduce our vehicle impacts during peak travel hours. Typically, a short trip that would be taken by bicycle is two miles; on foot, the average distance commonly walked is around one-half mile. Recreational bicycling is also gaining popularity as an essential need of the bikeway system in Surprise especially along Sun Valley Parkway.



The size, topography, and climate of Surprise make it an ideal city for bicycling. Bicycles are convenient for short trips within cities, especially those less than three miles in length. According to the United States Department of Transportation, one-quarter of all trips in this country are under one mile; about 40 percent of all the trips are two miles or shorter.

According to the 2000 census, less than one percent of Surprise residents commute to work by bicycle. The bikeway network has not been developed as a viable commute alternative in Surprise. Bicycle lanes and support facilities such as bicycle parking are lacking in most areas. Construction of a comprehensive citywide bikeway network and support facilities, such as bicycle parking at employment locations and other destinations, could greatly increase the mode share of bicycling. Reducing local vehicle trips into retail centers by shifting those trips to bicycling or walking would help alleviate circulation and parking concerns. Development of a bicycle path along the canal systems is also an opportunity to provide alternative cross-town linkages.

The *Alternative Modes Plan* includes three types of bike path designations:

- **Bike lanes:** Bike lanes are within the roadway, next to the curb. Bike lanes are proposed for both minor arterial roadways and collector streets without on street parking.
- **Multi-purpose paths:** Multi-purpose paths are behind the curb and sized to accommodate both bicyclists and pedestrians. Multi-purpose paths are proposed for all parkway cross sections.

- **Bike Routes:** Bicycles are allowed to operate on all Arizona roadways where they are not prohibited by the State Engineer (currently only the Valley Freeway System and Interstate-10 between Phoenix and Tucson). Bicycle routes are roadways which have no bike lane designated within the roadway but which are accepted recreational bicycle corridors of regional significance, such as Sun Valley Parkway, which see significant recreational use. The *Alternative Modes Plan* is intended to support both commuter and recreational bicyclists with local and regional links

### **Bicycle parking and support facilities**

Every bicycle trip has two components; the route selected by the bicyclist and the “end-of-trip” facilities at their destinations. Support facilities are facilities that cyclists use when they reach their destinations. They can include short and long-term bicycle parking, showers, lockers, good lighting, and even public phones. The lack of secure bicycle parking, shower, and locker facilities can be one of the largest deterrents to cycling for many riders.

Issues of concern for bicyclists include: barriers (freeways) and hazards (e.g., rail crossings), lack of bicycle accommodations on existing major roadways, lack of alternatives on heavily used major roadways due to inadequate street connectivity, and lack of traffic control devices that work for bicyclists. Maintenance of bicycle facilities is also a concern due to debris accumulation and surface deterioration.

### **Types of bicycle parking and support facilities**

There are different types of support facilities just as there are different levels of bikeway facilities. Support facilities fall into one of three main categories:



**Short-term bicycle parking:** Bicycle racks are low cost devices that provide a location to secure a bicycle. Ideally, bicyclists can lock both their bicycle frame and wheels. The bicycle rack should in a highly visible location secured to the ground, preferably within 50 feet of a main entrance to a building or facility. Short-term bicycle parking is commonly used for short trips, when cyclists are planning to leave their bicycles for a few hours.

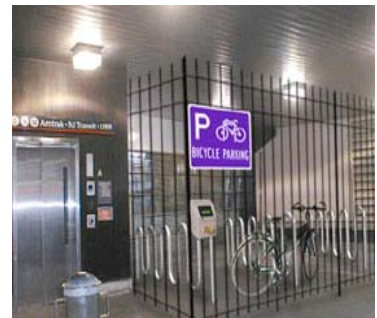
**Long term bicycle parking:** Bicycle lockers are covered storage units that can be locked individually, providing secure parking for one bicycle. Bicycle cages are secure areas with limited access roads. Occasionally they are attended. Each of these means is designed to provide bicyclists with a high level of security so that they feel comfortable leaving their bicycles for long periods of time. They are appropriate for employees of large buildings and at transit stations.

**Shower and locker facilities:** Lockers provide a secure place for bicyclists to store their helmets or other riding gear. Showers are important for bicycle commuters with a rigorous commute and/or formal office attire.

**Bicycle stations:** Bicycle stations provide free all day attended bicycle parking. Bicycle stations usually provide bicycle tune ups, repairs, and rentals in order to sustain their operation. They are intended to serve locations with larger numbers of bicycle commuters needing long-term bicycle parking and are an excellent means of facilitating the inter-modal connections between bicycles and transit.

### **Public education**

To be responsible bicyclists, riders should learn their rights and responsibilities and safe riding techniques. This knowledge is also necessary for motor vehicle drivers sharing the road with bicyclists. There is a continuous need to provide education for bicyclists and motorists including development and distribution of bicycle maps and other informational materials and conducting safety and training programs.



### C. Neighborhood Electric Vehicle (NEV)



The neighborhood electric vehicle is a small, electric car designed for low-speed, local trips in neighborhoods and urban areas. These vehicles are designed for short trips on surface streets to carry small loads, and generally for one or two people, although they might be designed for additional passengers. The popularity of NEVs is growing at an incredible rate. NEVs are similar to golf carts and some even double as golf carts, but they are street legal in most areas. They are not intended to be freeway capable, allowing for a dramatic reduction in energy and power needs.

NEVs would serve those trips that consumers find too long for walking and bicycling but do not require the use of full-size automobiles. They have become incredibly popular in many places such as retirement communities, resort areas, campgrounds, and golf course communities. NEVs are usually a little faster and safer than a standard golf cart and they will normally carry four passengers. NEVs have been growing in popularity among all age groups especially among the numerous adult communities that have been developed in the city of Surprise planning area during the past twenty years. These communities provide amenities that encourage the use of NEVs and golf carts as a means of transportation. During the development of the Surprise General Plan 2030 several issues concerning current and future conflicts between NEVs, golf carts, and automobiles were identified. Concerns include increased traffic on major streets, the increasing difficulty for NEV and golf cart drivers to cross these streets, and safe access for golf cart users to shopping areas and grocery stores. The city of Surprise supports the use of electric vehicles, but has emphasized that the vehicles must be operated in accordance with existing Arizona law. Arizona law provides the following restrictions (ARS 28-966):

A neighborhood electric vehicle shall not be operated at a speed of more than twenty-five miles per hour (25 MPH).

1. A neighborhood electric vehicle shall not be driven on a highway that has a posted speed limit of more than thirty-five miles per hour (35 MPH). This section does not prohibit a neighborhood electric vehicle from crossing a highway that has a posted speed limit of more than thirty-five miles per hour at an intersection.
2. A neighborhood electric vehicle shall have a notice of the operational restrictions applying to the vehicle permanently attached to or painted on the vehicle in a location that is in clear view of the driver.

The need for NEVs to reach destinations by crossing major roads makes for potentially hazardous situations. The use of NEVs to cross over into areas that are not signed or built to accommodate them may result in a serious safety hazard. To accommodate NEVs safely on existing roads designed for large vehicle and fast-moving traffic, infrastructure standards and designs will need to be modified. The type and scale of NEV infrastructures would vary across communities, depending in part on which vehicles prevail. On streets that carry heavy traffic, NEVs should be allowed only if the posted speed meets state requirements and if the drivers of other vehicles are made aware of the presence of such vehicles in the area. Any NEV used on the city streets should be equipped and insured in the manner prescribed by state law. Improvement in safety of these low-polluting and energy efficient vehicles is a significant concern in the city of Surprise.



### 3.3.3 Goals and Policies

#### Goal 1

**A safe, comprehensive, and integrated pedestrian system and facilities is created, maintained and integrated into the village planning process.**



#### Policies

1. Conduct an inventory of key pedestrian facilities and routes to identify missing and deficient links, pedestrian crossings, or intersections.
2. Improve pedestrian experience through streetscape enhancements, focusing improvements where there is greatest need.
3. Improve street crossings and complete gaps in the sidewalk system through development review and capital improvement projects.
4. Create a pedestrian priority program emphasizing pedestrian circulation needs and safe street crossings.
5. Establish a prioritization and funding mechanism for completing gaps in the sidewalk system, identifying locations for improving street crossings, and installing curb ramps to meet ADA specifications.
6. Establish a network of multi-use trails to facilitate safe and direct off-street bicycle and pedestrian travel.
7. Develop a program for installation of pedestrian facilities in already developed urban areas where they do not currently exist.
8. Improve pedestrian visibility and safety, and raise awareness of the benefits of walking.
9. Identify specific pedestrian mobility and accessibility challenges and develop measures for implementation of necessary improvements.

## Goal 2

**A safe, comprehensive and integrated bicycle system is created and maintained.**



### Policies

1. Implement the bike lanes, paths and routes as outlined in the bicycle plan.
2. Design and maintain bikeways at local, state, and federal standards in order to maximize safety for bicyclists.
3. Develop and implement a uniform bicycle signage program to enhance safety and ease of travel.
4. Promote bicycle travel as an alternate mode of transportation.
5. Promote a system of bicycle facilities that provide a continuous, connective, safe, and accessible system.
6. Promote bicycle safety education programs to increase awareness of and adherence to laws and regulations regarding bicycle use.
7. Design bicycle facilities consistently throughout the region.

## Goals 3

**Increased use of NEVs are facilitated through appropriate roadways. NEV use has increased and there are appropriate roadways.**



### Policies

1. Support the designation of neighborhood electric vehicle routes
2. Adopt a classification of NEV routes.
3. Develop signage, striping and pavement marking standards for NEVs on appropriate local and neighborhood streets.